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ABSTRACT

This guide is essentially designed as a teaching aid for those who would inform planners, officials of educational ministries, school administrators, principals, and teachers about educational outcome measurements. In outline and graphic form, the guide presents topics for discussion in a seminar dealing with uses of outcome measurements. An outline is presented and is intended as a preliminary "lesson plan". A discussion leader, selected by the group, will select material appropriate for his or her group, adding and illustrating materials that are of particular interest to his or her country's (or region's) educational system. Steps required to use the seminar format are listed. At the end of the seminar those participating should: (1) Understand that outcome measurements have many policy applications; (2) Be able to identify the ways in which outcome measurements are used to carry out the several policy and management purposes; (3) Understand the limitations of outcome measurements now in use; and (4) Be able to identify and apply those outcome measurements that are especially relevant to the participants' work. (RC)

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SEMINAR NO. 2

TYPES OF OUTCOME MEASUREMENTS

A Guide to Educational Outcome Measurements and Their Uses

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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TM005 296

2

A GUIDE TO

EDUCATIONAL OUTCOME MEASUREMENT AND THEIR USE

SEMINAR NO. I
Types of Outcome Measurements

SEMINAR NO. II
Uses of Outcome Measurement

SEMINAR NO. III
Generating Outcome Measurements: Achievement and Attitudes

SEMINAR NO. IV
Generating Outcome Measurements: Economic and Societal

SEMINAR NO. V
Applying Outcome Measurements

SEMINAR NO. VI
Feedback Consequences and Steps toward Implementation

SEMINAR NO. II

USES OF OUTCOME MEASUREMENTS

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PREFACE

This guide essentially is designed as a teaching aid for those who would inform planners, officials of educational ministries, school administrators, principals and teachers about educational outcome measurements.

In recent years, educational services and facilities have made increasing claims on national economic systems. Since the needs of all public services, including education, are pressing and sum to totals far in excess of resources available, it has become urgent that governments initiate processes of questioning both existing resource uses and those proposed, asking: Can we serve the public better and more cheaply? What can we do that would more surely achieve the results we seek?

Responsible education, planning, and finance officials have indicated great interest in measurement of educational results as a beginning step to finding answers to these questions.

In outline and graphic form, this guide presents topics for discussion in seminars dealing with the following subjects:

I. Types of outcome measurements
II. Uses of outcome measurement
III. Generating outcome measurements (achievements and attitudes)
IV. Generating outcome measurements (economic and societal)
V. Applying outcome measurements
VI. Feedback consequences and steps toward implementation.

The outlines for six seminars which follow are intended as guides or preliminary "lesson plans." The discussion leader will select material appropriate for his group. His additions of information and illustra-

tive materials that are of particular importance to his country's (or region's) educational system would greatly enhance the discussion.

"Figures" are presented before each discussion question and are tended to serve as visual aids. The discussion leader may distribute copies to group members or he may find it helpful to enlarge the figures into charts to use for the discussion, or to have view graphs made for this purpose. To facilitate such use all figures are reproduced in appendix B.

The topics covered can be so selected that a general orientation about educational outcomes may be presented in summary form in a single seminar, or more in depth discussion would require at least 6 seminars. Extensive training of one year or more is required to develop skills needed to properly design measurement instruments or the analytical capacity to apply them. However, for those who have the required analytical and quantitative skills already, participation in the seminars outlined would help provide an understanding of the policy implications of the emphasis on outcomes. The seminars are not designed as technical training, rather they are intended to:

- Provide an understanding of the different types of educational outcomes.
- Identify the variety of uses of outcome measurements.
- Help convey the choices on outcome measurement instruments and yardsticks for policy officials, school administrators and teachers.
- Provide some rudimentary understanding of the tools of analyzing the correlates of education outcomes.
- Make plain the possible impact of emphasis on educational outcomes for educational planning and school finance, as well as work in the classroom.

To use the seminar format the following steps are required:

STEP 1
A seminar discussion leader must be selected.

STEP 2
The discussion leader, together with the educational officials sponsoring these sessions should identify the particular purposes of the seminar, and should answer such questions as: For whom are the seminars intended? What is the purpose of carrying out the seminar?

STEP 3
Seminars should be announced as an offering with (a) the clear indication of top level support, and (b) a practical use of the learning

achieved in the continued work of the official, administrator, or teacher.

STEP 4

The discussion leader might select from the materials and "figures" presented in this guide those that appear particularly useful for the specific groups with whom the discussions are scheduled.

As an aid in this selection process, Appendix A suggests some portions of the text that appear most important for the following groups:

- top officials concerned with overall policy planning
- middle management in Ministries of Education and Finance
- school administrators
- school principals
- teachers
- instructors in teacher training institutions.

STEP 5

Supplementary reading materials should be selected. Supplementary readings are available from the Public Services Laboratory of Georgetown University; these include **Educational Outcome Measurement in Developing Countries: An Annotated Bibliography;** and **Educational Outcome Measurement in Developing Countries.**

STEP 6

Some preliminary evaluation should be introduced at the close of the seminars to determine whether the objectives of each seminar have been fulfilled. This can be done by testing instruments, by questionnaire, or by final closing comments of participants.

Such evaluations tell us little about whether the seminars made a difference. Only practical application indicate whether the seminars were successful in changing traditional practices.

TOPIC TO BE COVERED:
USES OF OUTCOME MEASUREMENTS

Objectives of Seminar No. II

At the end of the seminar, those participating should:

(1) Understand that outcome measurements have many policy applications.

(2) Be able to identify the ways in which outcome measurements are used to carry out the several policy and management purposes.

(3) Understand limitations of outcome indicators now in use.

(4) Be able to identify and apply those outcome measurements that are especially relevant to the participants' work.

Introductory Question for Discussion

If there were perfect measures for individual and social competency, how should those measures be used in planning and implementing education?

NOTES FOR DISCUSSION LEADER

The discussion leader might begin with the question stated above to encourage an exchange among participants on what outcome measurement is intended to do.

As may well be expected, the discussion that follows will depend heavily upon the role of the participants in the educational system, that is, whether they are planners, fiscal officials, school administrators and so forth. Differing emphasis also will be given to educational outcomes depending upon the way in which planning is constructed and the relation of planning to budget decisions. For example, a planning-budgeting system has been put into effect. Or, is management linked to planning in a MBO process? If some planning or program budgeting system is in use governmentwide, there is likely to be far greater awareness of the immediate application of the findings of the seminar work. At the same time there may be more hostility to ideas about measurement by those who may feel threatened by changes that are intended in processes or in the way in which the official's duties are being carried out.

Ideas on Presentation

Uses of outcome measurements could be enumerated based on the discussion indicating, however, that this enumeration is not necessarily comprehensive. It may well turn out that additional applications for outcome measurements are identified during the course of the seminar's discussion. A listing of these for the discussion group is very useful both in encouraging participation and in clarifying the importance of pressing forward on quantification of outcomes.

Questions for Discussion

Are the same outcome indicators useful for a variety of purposes?

NOTES FOR DISCUSSION LEADER

A list of possible uses of outcomes is being discussed.

The discussion of Figure II-1 is intended primarily to provide a backdrop for the subsequent conversation about the processes of each of the uses listed. To the extent that it is feasible to do so, the several additional purposes enumerated by the discussion group should be incorporated into the conversation.

To cite one such additional use: to inform parents and gain their participation in school decisions and funding.

It is most likely that outcome measures will vary depending upon purpose. It has already been suggested that for some school purposes, far greater specificity is needed than is required for overall planning purposes.

However, to the extent that the outcome measurements are applied to overall resource allocation decisions linked to program objectives given the same objectives, criteria for assessment are likely to be similar if not the same.

Ideas for Presentation

Analysis of educational policies is not new. Planning for education has gone on over many years. What is new is that this planning effort starts from a set of manageable criteria-oriented and specified outcomes that are being sought or drawn from the goals of education. The planner continues to ask how best, by what optional methods, could those objectives be obtained and at what cost?

Evaluation at various levels has been identified as important to understanding the consequence of educational policy, once such policies are formulated. There is much ambiguity in terminology—ambiguity that results from the variety of word uses at present. Although we do not advocate any particular word usage, it would be well to note that we are considering evaluation here as a method for examining programs after the fact. It is, therefore, a process that differs in these respects from program analysis: costs are known and are a consequence of actual operations and effectiveness measures are being assessed—effectiveness of a defined set of programs, projects, or activities rather than a set of options generated ahead of time.

Does this mean that in evaluations options are ignored? The answer generally is "no." The intent is to review and to draw on best known

FIGURE II-1

FOUR MAJOR APPLICATIONS OF OUTCOME MEASUREMENTS

OUTCOME MEASUREMENT AS A TOOL FOR:

- Analysis of Program and Policy
- Evaluation of Project, Program, and Policy
- Management by Objectives and Productivity Assessment
- Distribution of Grants to Schools and Districts and Among Levels of Education

experience. When on initial exploration, programs are found wanting or found not to be not cost-effective, or to have a questionable effectiveness, options are offered as the experimental next stop.

Evaluations are likely to be addressing the question: to what extent are those who are in receipt of educational services (of one or another defined type) different in their intellectual, social, or personal development from comparable persons who did not receive such educational opportunities? To what extent does the social and personal development differ from what it otherwise would have been?

In addition to program analysis and evaluation, outcome measures are useful in management of programs. Assessment of productivity of the programs in relation to the staff and resources brought to bear in carrying it out provides a basis for managing programs. Has the organizational structure been appropriate? Have the requisite number of persons with the required talents been brought together to carry out an educational program? Are the facilities appropriate? Should TV or other equipment be used? What other combinations of resources might prove more useful in terms of outcome and which are less costly?

It may be helpful to look at outcome measurements more specifically in the context of the steps or phases of each of these methods of assessing resource use and achieving greater effectiveness of programs. (This leads to our discussion of Figure II-2.)

Question for Discussion

At what phase (or phases) of policy analysis does outcome measurement become critical?

NOTES FOR DISCUSSION LEADER

It may be useful to review Figure II-2 indicating the steps in the analytical process at which outcome measurements are a phase of the process. (These are separately identified in the figure shown.)

The following may be pointed out for group discussion:

- The outcome measures are derived in accord with the definied objectives.
- These same measures become an initial screening tool for deciding on feasible options.
- The measures also determine the kinds of data and information that is required to carry out the analysis.
- Outcome indicators are measures of quantified effectiveness and qualitative outcomes.

Ideas on Presentation

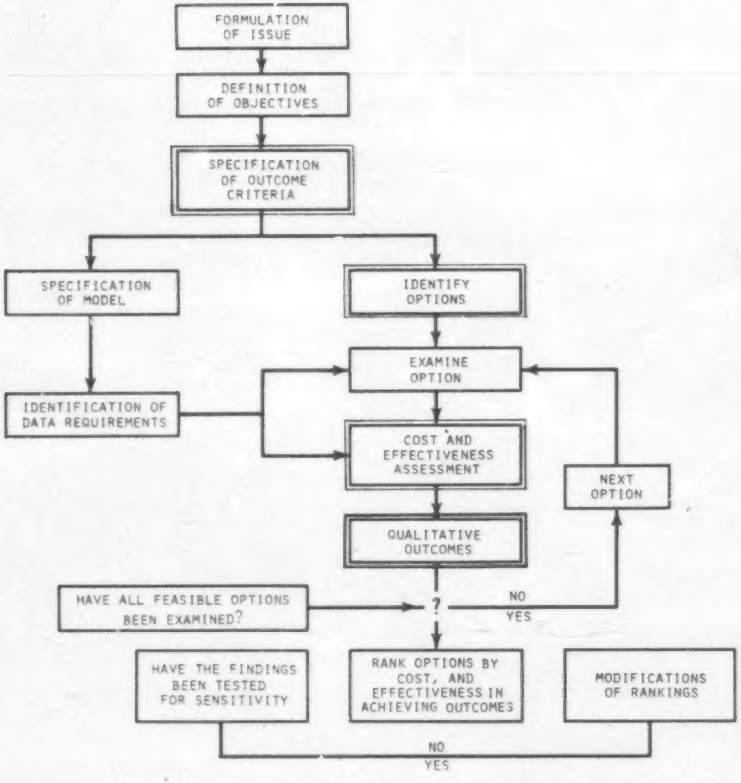
We look first at outcomes as a component of policy analysis. It has become traditional to enumerate the several components of policy analysis in a set of steps. These steps may be formulated somewhat as follows: first, a question is raised, an issue put, a problem concerns the Minister of Education, the principal of a school, the superintendent of a complex of schools.

What is the form of that question? Until the concept of outcome measurement gets to be more widely understood, it is likely that issues will not be formulated in terms of major objectives, but rather in terms of dysfunctions, in terms of inadequacies of inputs into the educational system.

For the most part, policy officials deal with the crises and questions for which political forces demand answers: How can we extend primary schooling to all our population in the next five years? How can we develop teachers for our secondary schools? What provision should be made for television or how do we implement nonformal instruction in the rural communities? How do we get textbooks into the schools? What kinds of textbooks? For what kinds of subjects? These are the kinds of issues that officials are asked to address with some urgency and usually within severe budgetary constraints. But underlying each of these questions is a set of objectives. What are

FIGURE II-2

OUTCOMES AS COMPONENTS OF POLICY ANALYSIS



those objectives? And, once defined, is it possible that these objectives be stated in an operational way? A most difficult task is to break down broad statement of policy purposes into operational terms.

It is this aspect of analysis, namely, the need to specify objectives in output terms that makes outcome measurement so important. The task of defining output measures goes hand in hand with the specification of operationally meaningful objectives. Until objectives have been defined in a way that potentially at least permits measurement of progress and comparison of the rate of progress under alternative programs, analysis will not be possible.

The task again is not easy. A developmental process can be expected to continue over a series of years in which objectives are formulated and reformulated, outputs defined and redefined, tested and measured again. Various outcome criteria will tend to be found wanting and better yardsticks will be sought. As a consequence, criteria will be redefined. At each stage, the basic program purposes will be questioned and reformulated.

Outcome criteria can be formulated in terms of types of learning sought; in terms of target groups, for example, those in rural areas or in the capital city; and in terms of special population groups, for example, various ethnic groups or those living in isolated parts of the nation.

Experience in several analytical efforts suggests that there is considerable agreement on objectives especially when those objectives are defined in an operational way. Discussion is likely perhaps to enlarge the number of criteria and to emphasize multiple objectives; addition of criteria is more fruitful than attempting reconciliation of diverse views and the time-consuming process of reconciliation. Those who make the decisions then face the task of selection of weights in the reconciliation process.

Given the criteria of measurement, the next problem becomes one of the appropriate data collection and estimation in order to quantify the potential outcomes or results from operational programs.

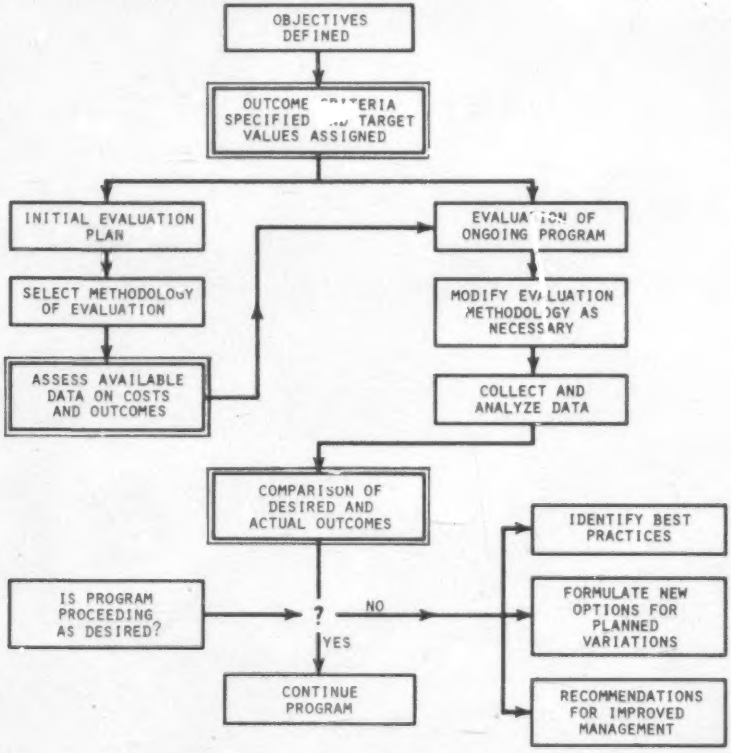
OUTCOMES IN EVALUATION

Question for Discussion

Where in the evaluative process are outcome measurements used?

FIGURE II-3

OUTCOMES IN EVALUATION



NOTES FOR DISCUSSION LEADER

It may be useful to run through the phases identified in Figure II-3 indicating the steps in the process at which outcome data are important.

Before undertaking this presentation, however, it would perhaps be helpful to indicate:

(1) The specific diagram presented is one of many possible descriptions of evaluative processes.

(2) The essential components of the evaluation are (a) the identification of objectives, (b) the formulation of criteria of assessment of those objectives, (c) the collection of the required information by which to judge the extent to which the objectives have been met, (d) examination of the information collected, and (3) formulation of possible options or remedial steps when evaluation findings are negative.

(3) The outcome indicators selected will be the determining factor in the data collection, examination of the data, and findings.

If the group's participants have had experience with evaluations, it might be useful to identify evaluations that have been carried out, the methodology used, and the findings as a basis for the group's discussion. A sharing of experience would help to clarify the application of outcome measurement in evaluative studies.

Ideas on Presentation

Closely related, as indicated earlier, to analysis of programs prior to policy decisions is the evaluation of programs after the fact, that is, of programs already in effect answering such questions as: Do additional expenditures for primary school make for added learning?

The steps in outcome evaluation include the determination of outcomes sought, the specification of those outcomes in terms of criteria as defined, the collection of available data on outcome criteria and costs, the selection of a methodology for analyzing those data, new collection of information as required, and the carrying out of the evaluation.

It is important to know that very often evaluations call for a blocking out or narrowing of general problem areas. For example, in the study of the impact of the well-known Headstart program in the United States, many of the outcomes of Headstart were excluded from the analysis. Rather a limited question concerning Headstart's impact was asked. That question has been stated somewhat as follows: Taking the program as a whole, as it has operated to date, to what degree has it had psychological and intellectual impact on the children that has persisted from preprimary education into the primary grades?

Thus, Headstart evaluations in the United States did not assess the impact of the program on the total community, or on the schools, or on the morale and attitudes of the children while they were in the program. The evaluations asked: did children in Headstart read better by the time they reached third grade than those who had no Headstart? Narrowing down to issues is often required as an operational way to carry out an evaluation.

OUTCOMES AND MANAGEMENT BY OBJECTIVES

Question for Discussion

Why is outcome measurement a critical component in Management by Objectives (MBO)?

NOTES FOR DISCUSSION LEADER

Figure II-4, Outcome Measurements, is important in making management decisions. Such outcomes define the "product" or service that is being produced by those who are working in the education ministry and in the schools. Unless we know what the ministry and the schools are intending to do to produce learning of the students, it is not really possible to assess alternative management practices-alternative pay scales, classroom groupings, location of educational offerings at site (in plants and farms) or in classrooms.

Results cannot be assessed without knowing what outcomes were being sought and for whom. MBO is not intended as a rigidly defined process. The stages shown in Figure II-4 are at best illustrative.

Management processes are sometimes described "as a style." Instead of formal processes, MBO may take the form of a dialogue between officials and subordinates on the important questions of: What outcomes, why, outcomes for whom, outcomes in what places, outcomes when?

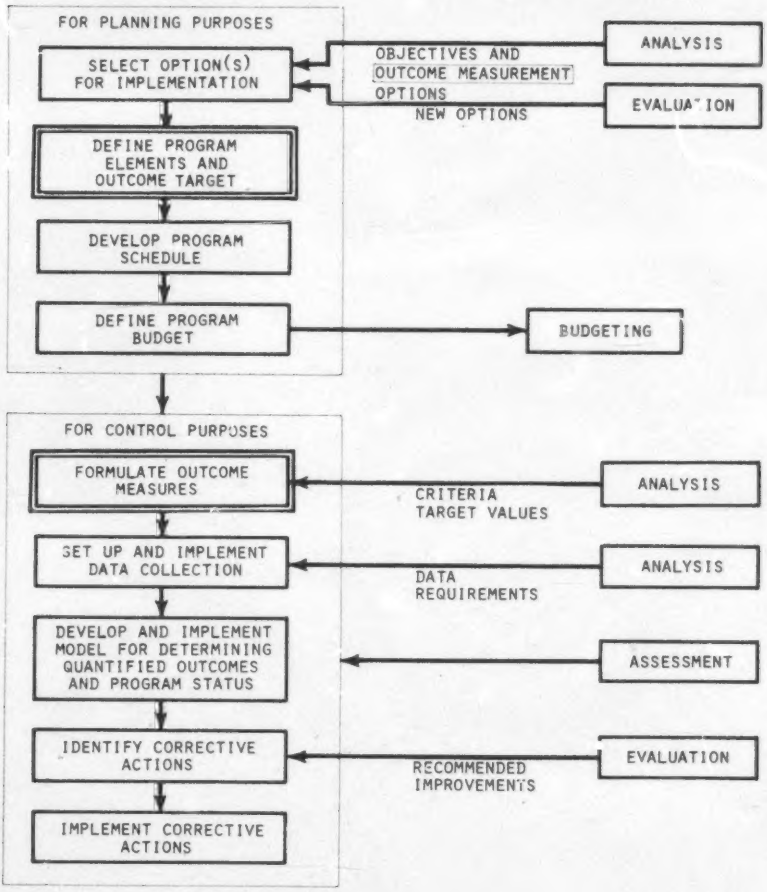
Sometimes the management process looks to such methods as *organizational* development (OD) to help the managers of educational programs to gain joint consideration, for example, by teachers and educational administrators, of the goals and targets to be set. OD also requires a joint consideration of the barriers (at any one point in time) to achievement of the targets with the expectation that such discussions will result in ironing out differences and smoothing the way to change and to enlarging results on outcomes.

Ideas on Presentation

Still a third use of outcome measurements has to do with management of programs. One can start from the question: What is it that is to be achieved? Management processes require the formulation of how that achievement is to be reached, the determination of when that purpose has been reached, and the quantification of costs. These steps are essential to the initial planning for management decisions, but management involves control, and control, in turn, requires the formulation of performance measurements and the quantification of the progress achieved. Having quantified the rate of progress, the issue remains what corrective steps need to be taken, if any? When must these be taken? And how must these be taken to reach the final purposes?

FIGURE II-4

MANAGEMENT BY OBJECTIVES



A management cycle may be viewed as consisting of three phases, each dependent upon the phase immediately proceeding, namely:

analysis | target setting | assessment.

Analysis as used here calls for identification of needs (or the gaps in outcomes, for example, knowledge and skills sought in a population group); setting of priorities; formulating organizational changes required to achieve targets.

Target setting, as used, includes setting quantities of outcomes, together with quality conditions determined as desirable outcomes. Such target setting may involve final outcomes, e.g., reading or health skills at defined levels for 25 percent of the population in an area or in an age group. Or they may involve process changes suggested by analysis such as building teachers' capacity by special education programs.

Assessment, as used here, is determination of the results—the progress made toward achieving set targets and the outcomes.

Management includes appropriate staffing and use of personnel in carrying out the function. For education this means, among other things, how best to judge the performance of the teachers, the principals, the community, the school supervisors, the teacher training institutions and the educational policy staffs in terms of the progress that is made, and how best then to set in motion the steps that are required to alter the performances when changes are needed or indicated by deficiencies in action.

Management may judge teacher performance by the education of the teacher, by teaching skill in the classroom or by work with students. Many professional educators today are seeking new approaches to teacher certification, and among those approaches are criteria of success of teachers in their teaching.

Management of schools, teacher recruitment, and teacher training in terms of outcomes raises a host of issues. Among those issues are what outcomes should be measured, what the role the teacher should play in making these determinations, who should judge teacher behavior, what variations in teacher behavior appropriately contribute to improving the performance of children. The bias today is toward judging teaching on the basis of pass rates.

OUTCOMES AND EDUCATIONAL FINANCE

Question for Discussion

How may outcome measures be used in educational financing?

NOTES FOR DISCUSSION LEADER

It may be useful to initiate a discussion of the potential uses of outcome measures in financing education, including:

(a) subventions in decentralized systems

(b) grants to individual schools

(c) rewards for outstanding teachers.

Some of the problems in applying such outcome measures in educational financing also should be considered so that the discussion in a balanced way gives the pros and cons.

Ideas on Presentation

When outcomes are measured, it becomes appropriate to ask what is the potential application of outcomes in educational finance? Outcome information can be used in one of two basic ways in educa-

FIGURE II-5

OUTCOME MEASUREMENT AND EDUCATIONAL FINANCE

Additional grants for improving output

- Additional grants by specified formula for special target groups (rural, ethnic, income groups, etc.)
- Additional grants on the basis of contractual agreements for achievement of defined changes in educational outputs

Rewards for improved output

- Additional funds for programs, classes, areas that meet achievement and other output standards
- Additional funds for programs, classes, areas that raise their levels of achievement
- Reduction in payments for little improvement
- Reduction in payments for lack of performance of target groups
- Reduction in payments for lack of performance in special curriculum areas

tional finance, namely, (1) to identify those educational programs and regions that have low outcomes so that more by way of resources are put into those schools and (2) to reward those schools and regions that make special effort and increase the outcomes in the school.

It is important in the specific design of a financial plan to take account of the complex incentives that come into play. Extra funds to those with low outcomes should not be so designed as to stand in the way of raising the low level of educational outcome; nor should rewards be given to schools that show large additions to outcomes as measured but do little through the school to achieve the purpose. (Study findings to date suggest that schools with large numbers of young persons from high income families and from families highly motivated to learning with the family resources of books, access to theatre and to travel are likely to have children who learn more, learn faster and by some measures of outcome would become eligible for rewards.)

A small amount of experience has been gathered in using measured achievement for compensatory type grants. Higher grants go to those school districts that have large numbers of children with low achievement scores. Outcomes are thus used as a means of identifying special need for additional resource inputs and funds are distributed accordingly.

There are some dangers in use of partial outcome indicators for grant purposes and these dangers suggest fairly restricted or limited use of outcome measures in grants-in-aid until more experience has been accumulated and outcome measurement improved.

But outcome measurements serve other educational finance purposes. When results are measured, it becomes possible to judge whether groups in the population, those, for example, in rural areas, are learning as much (more or less) as those at the same age in the cities. It became possible to judge whether persons whose family tongue is the language used in the primary education programs are learning better than those whose family tongue is different than the language in the program. Adjustment in school finance to such findings can be made with appropriate incentives.

And it is possible with outcome measurement for families to decide where they want their children to go to school on the basis of the learning achieved.

Other financial uses such as teacher payment incentives, documentation of external fund requests, productivity bargaining also need to be considered.

Question for Discussion

What are the geographic levels of analysis and assessment? What are the project policy levels?

NOTES FOR DISCUSSION LEADER

The discussion could begin by indicating that there are different levels at which decisions must be made about use of resources and their effectiveness. It may well be that outcome measurement in education is most useful where it may be linked to day to day decisions about the learning of an individual. But the essential point that may be given emphasis is that there are different levels of decision and measurements required may be expected to differ depending upon the particular level at which the educational issue is being considered and decisions taken.

Ideas on Presentation

There are a number of levels at which outcomes are necessary for purposes of analysis, evaluation, management and finance. Some of these require different levels of criteria, appropriate to the level of examination and assessment.

Initially, we distinguish three geographic levels of educational outcome measures or the scope of the policies (see Figure II-6). First, there are those that relate to nationwide purposes, for example, social advances, economic development, enhanced mobility, or national unity.

At a second level, there are regional purposes, that is, purposes that are related to compensating or building on differential regional circumstances or developments perhaps looking toward evening out between the capital city area and the rest of the nation. If deemed more appropriate for the rate of economic advance, the capital city's progress may be viewed as desirable as a regional growth center in accelerating economic development. Certainly regional development, whether of the evening out type or of the "growth center" type is of great importance. Within regional development, there is likely to be an educational component that serves purposes of individual development, purposes of improving aspects of day-to-day living and also special economic outcomes relating to jobs, income, and productivity in specific regions of the country.

It is at this level that the program planner is concerned about understanding both rural progress and urban growth and measures of

FIGURE II-6

GEOGRAPHIC SCOPE OF ANALYSIS AND ASSESSMENT

1. National outcomes related to nationwide object.
2. Regional outcomes that serve regional purposes.
3. Outcomes expected of a project either
   (a) an educational project, school, or classroom
   (b) a developmental project other than education, e.g., electrical utility distribution

POLICY-PROJECT LEVELS OF ANALYSIS AND ASSESSMENT

Level 1. Policy or impact
Level 2. Cost-effectiveness
Level 3. Specific project monitoring

educational outcome that might capture quantitatively the progress of the educational system in achieving more rural development or more urban growth. If unemployment characterizes the large cities of the country, educational processes have a responsibility to alter those forces that contribute to further migration to those cities.

Still a third level of assessment measures education as a component of development projects. There are two types of projects to bear in mind: (1) those that are educational projects, in which the objectives are defined in educational terms, such as advancing human competence of a specific type such as providing skills for work and (2) the type of project which is concerned with other specific aspects of development in which education is tandem to, but not central to, the purposes. For example, electric power distribution through the nation may be the purpose in order to achieve further economic development. What is then needed is a set of educational efforts designed to train workers in the skills required to act as linemen or

repairmen so that the electrical lines may be installed and maintained. The educational component is clearly supportive of the main purpose of electrical power distribution.

These several levels of projects each with their own level of objectives have to be considered when the problems of determining and applying outcome measure for the purpose of analysis, evaluation, and management are taken into account.

Next, it is customary to think of three kinds or levels of evaluation and analysis. First, is it evaluation of broad policy or impact analysis? To illustrate, does an educational program contribute to basic skill knowledge, motivations for progress, additional work skills? Or, are those results of work skills, basic knowledge and attitudes and motivation produced by other factors outside of schooling? If one were to ask to what extent are the outlays made determinant of the final results, what would be the findings? These are the kinds of questions that are raised in carrying out an overall impact analysis.

The second level of evaluation essentially asks if the program is cost-effective. Are we getting back results commensurate with the resources that we are putting into the program? What are the trade-offs? If we were to count the costs, the complete costs, and also take account of the full measure of benefits, would the end product be plus or minus? If benefits outweigh costs, the program has proven itself. If, however, they fall short of costs, presumably other optional steps should be taken to carry out the general purpose. These are the questions raised in a cost-effectiveness evaluation.

There is still a third level of evaluation and that is the evaluation or monitoring of a specific project which involves, among other things, monitoring the inputs of a project to define and record the resources devoted to it. The questions at issue are these: What is in fact being used for the project? What are the ways in which those resources are combined? What are the outcomes as they appear at the project level? Too often, those involved in the carrying out of a specific demonstration overlook some aspect of costs or of returns which are germane.

Those who plan and direct a project become convinced of its usefulness. Indeed, part of the input is the enthusiasm of the direction. But the very qualities that make for good direction are those that impair objectivity required for evaluation. If an objective evaluation is to be carried out, the special characteristics of the inputs have to be documented and the outputs related to those inputs.

SUMMARIZING FINDINGS OF USES OF MULTIPLE OUTCOMES

Question for Discussion

Do multiple outcomes, when used in one or the other of the ways outlined, "overload" the information for the policy official or administrator?

NOTES FOR DISCUSSION LEADER

There are dangers that use of multiple outcome measurements for analysis, evaluation, management, or finance would appear to make the problems unduly complex and the machinery for informing policy officials unduly costly. However, the process need not be overloaded or made costly.

Two single illustrations are given to show that more than one criteria is necessary when objectives are in fact multiple and that even a gathering of opinion (rather than hard data) in a schematic form would provide more guidance than is usually available to policy officials or administrators.

The yardsticks on outcomes could be expanded without overloading the information for the policy official.

The critical choices of concern to the discussion participants might well be used in lieu of the illustrations given to (a) make clear the usefulness of some such presentation of findings, (b) suggest how multi-dimensional outcomes would be used in practice.

Moreover, the exercise of attempting to "rate" the effectiveness of different methods tends to display the concepts involved. Of course, data in place of conjecture or informed judgment would greatly improve the information that is provided in support of decision.

Ideas on Presentation

The types of decisions which are involved are decisions about both classes of inputs and the overall share of resources for education (including each of the levels of education).

We do not have some grand design that easily permits decisions to be quantified as between spending funds for education and spending funds for health or for the building of a hydroelectric plant. In general, much of the quantification has been addressed to relative rates of return of classes of investment to the neglect of measurements of balanced economic and social development.

The comparing of educational policies and programs in terms of multidimensional effects as is proposed here complicates the analysis. There is no easy reference point for judging the effectiveness of one program relative to others.

FIGURE II-7

SUMMARIZING FINDINGS

Matrix of Multi Outcomes and Information for Policy Officials

Illustration I

Method	Outcomes		
	Basic Reading and Arithmetic Skills	*Motivation for Progress*	*Specific Work Skills (e.g., Auto Mechanics, Electronic Installation)*
A. Technical Institute	1*	2	2
B. Special Educational Facilities in Rural Areas	1	3	3
C. Subsidies or Tax Credits to Industrial Firms	1	1	1

Illustration II

Method	Outcomes		
	Skills in Native Language	*Motivation for Progress*	*Rural Industry Skills*
A. Technical Institute	2*	1	1
B. Special Educational Facilities in Rural Areas	1	1	1
C. Subsidies or Tax Credits to Industrial Firms	3	1	3

*Numbers indicate rank order, from a high of 1, of likelihood that program options will result in desired outcome.

The question asked here essentially is: is it possible to design a method for displaying the variety of program results or outputs for those who must make decisions without overburdening those decisions? We attempt here to formulate a process for displaying several effects of optional programs so as to facilitate program decision. For example, we assume that the purposes of an educational program are threefold: (1) to develop basic skills in individuals, (2) to motivate individuals for a modern society, and also (3) to provide skills required for work in the modern sector (or optional entrepreneurial activity in the rural sector).

We now ask about alternative programs for achieving these purposes. One option is to broaden the school program to include technical institutes which will teach basic skills, attempt to modify behavior with respect to modernization, and also transmit skills used or useful in the modern sector. A second option calls for new educational facilities in rural areas that would train persons for the modern sector using radio or TV as a method of instruction. A third option, as a process, might be to provide national funds or tax credits to industrial firms in the urban communities, to train workers so that they acquire basic skills, incentives for modernization, as well as skills for work in the particular industry undertaking to do the on-job training. Figure II-7 illustrates the relative advantages of these options in achieving the objectives of two different types of programs.

The outcomes sought in Illustration 1 in Figure II-7 are basic reading and arithmetic skills, motivation or a desire for progress (with attitude changes that contrast with a fatalistic acceptance of buffeting about from society), and knowledge about the specific type of skills (for example, knowledge about how to install electric lines in a community and repair damage to such lines). Judgment suggests that if firms were encouraged by subsidies to tax workers, the in-plant training would more surely than other methods achieve the purpose, thus, the 1 rankings shown in the Illustration.

But suppose as in the example of Illustration 2 there is a special target group involved, namely, youth in rural areas and the purpose is more specifically, training them to engage in some form of entrepreneurial activity in the rural areas using rural products, working in the areas' ethnic tongue. Subsidies to firms in cities are less likely to be effective than would support of training measures in the rural community.

This inquiry is followed by another: What are the costs of those options and which of these options would more nearly provide basic skills, attitudes for modernization, and the skills required by the modern sector?

It is not unlikely that the kinds of information that are needed to answer questions of this kind are lacking. The best that one may do is to assemble judgments of those most expert in the nation about the possible costs and consequences, results, or outputs, that might follow from these alternative courses. Techniques are available for assembling these views. Or, it may turn out that, in fact, there are some materials relevant to better understanding of each of these courses of action.

In general, it must be borne in mind that the process of changing the order of the question to ask about consequences, results and outcomes is a lengthy process, an iterative one, in which at each stage of policy analysis better information will be gathered and the question of results and consequences from optional programs will come to be better understood.

APPENDIX A

Selected Uses

As indicated in the Preface, some of the materials and "figures" in the six seminars may be particularly useful for the specific groups with whom the discussion are scheduled.

To some extent, selections will be made at the discretion of the discussion leader and may depend in part on the length of time available and on the amount of material included in the seminar.

Brief Comment on Selection from Seminars for Different Groups

Generally, Seminars III and VI, along with introductory material from Seminar I, are the most important for teachers, officials directly concerned with school administration, and teacher training institute instructors.

Seminars II, IV, and VI are most important in providing basic materials for top officials concerned with overall policy planning, middle management officials in Ministries of Education and Finance, and training institute instructors who teach planners and school administrators. Seminar I provides a backdrop discussion of concepts and of the multiplicity of outcome measurements. By and large, Seminar V will help inform top officials in planning and in Ministries of Education and Finance of what they can expect from the analyses.

Selected Uses for Seminar II

All materials in Seminar II are fundamental for top officials concerned with planning and for middle management officials in the Ministries of Education and Finance. For instructors in training institutions, all of the Seminar excepting II-6, "Levels of Analysis and Assessment," would be useful.

School administrators, principals, and teachers (and for trainers) would probably benefit from an overview of selected parts of this Seminar; but much of it may be too detailed and specific for their needs. Summaries of or excerpts from the following discussion topics might be presented:

II-1 Major Applications of Outcome Measurements
II-3 Outcomes in Evaluation
II-5 Outcomes and Educational Finance
II-7 Summarized Findings of Uses of Multiple Outcomes.

APPENDIX B

FIGURE II-1

FOUR MAJOR APPLICATIONS OF OUTCOME MEASUREMENTS

OUTCOME MEASUREMENT AS A TOOL FOR:

- Analysis of Program and Policy
- Evaluation of Project, Program, and Policy
- Management by Objectives and Productivity Assessment
- Distribution of Grants to Schools and Districts and Among Levels of Education

FIGURE II-2

OUTCOMES AS COMPONENTS OF POLICY ANALYSIS

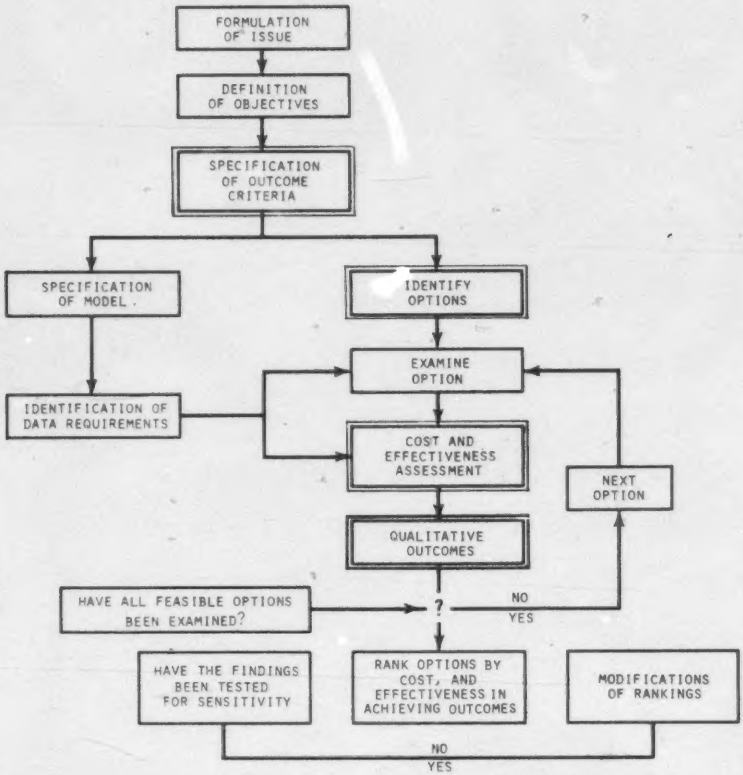


FIGURE II-3

OUTCOMES IN EVALUATION

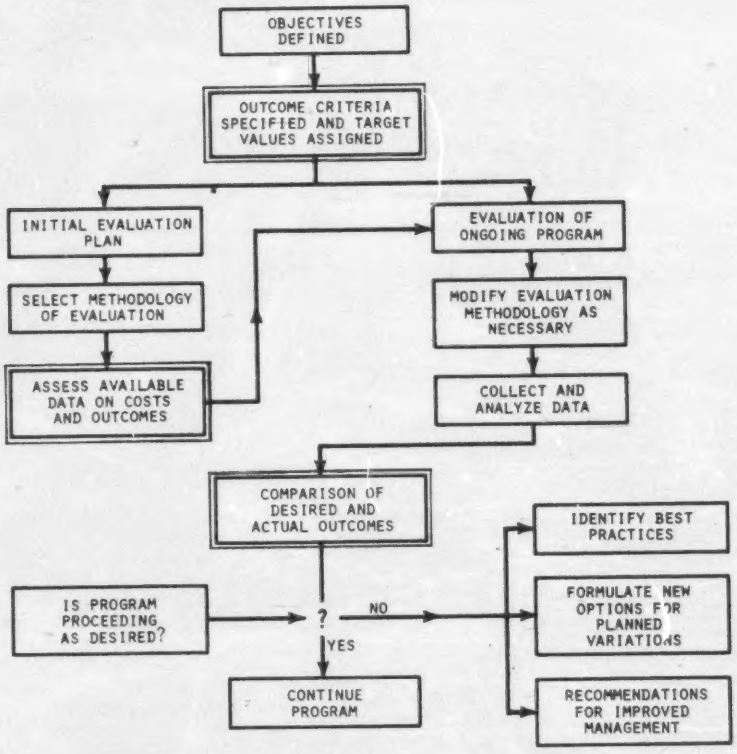


FIGURE II-4

MANAGEMENT BY OBJECTIVES

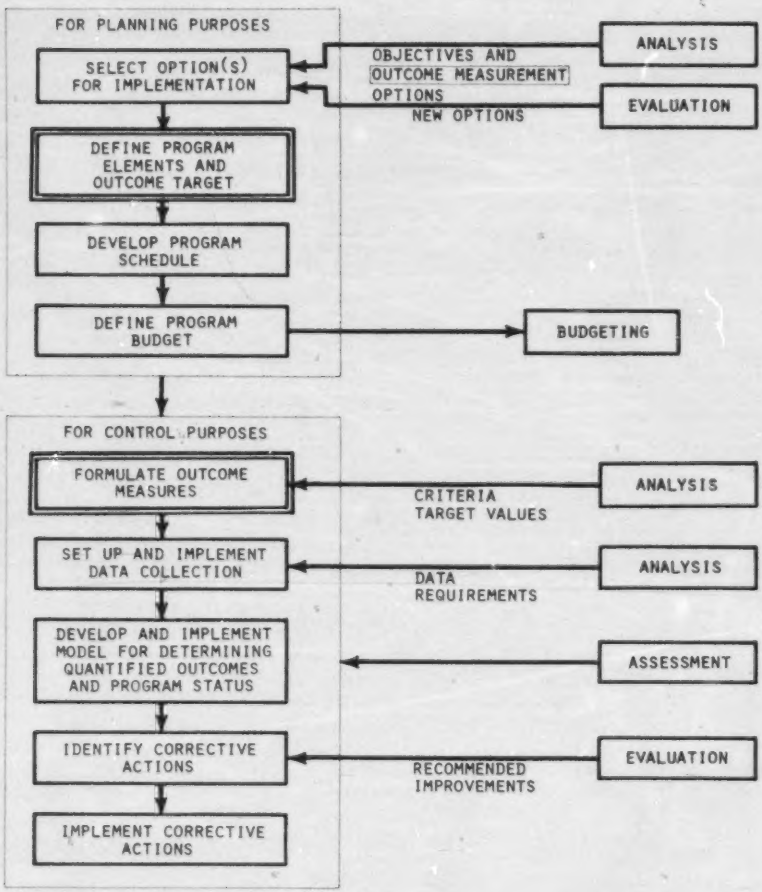


FIGURE II-5

OUTCOME MEASUREMENT AND EDUCATIONAL FINANCE

Additional grants for improving output

- Additional grants by specified formula for special target groups (rural, ethnic, income groups, etc.)
- Additional grants on the basis of contractual agreements for achievement of defined changes in educational outputs

Rewards for improved output

- Additional funds for programs, classes, areas that meet achievement and other output standards
- Additional funds for programs, classes, areas that raise their levels of achievement
- Reduction in payments for little improvement
- Reduction in payments for lack of performance of target groups
- Reduction in payments for lack of performance in special curriculum areas

FIGURE II-6

GEOGRAPHIC SCOPE OF ANALYSIS AND ASSESSMENT

1. National outcomes related to nationwide object.
2. Regional outcomes that serve regional purposes.
3. Outcomes expected of a project either
   (a) an educational project, school, or classroom
   (b) a developmental project other than education, e.g., electrical utility distribution

POLICY-PROJECT LEVELS OF ANALYSIS AND ASSESSMENT

Level 1. Policy or impact
Level 2. Cost-effectiveness
Level 3. Specific project monitoring

FIGURE II-7

SUMMARIZING FINDINGS

Matrix of Multi Outcomes and Information for Policy Officials

Illustration I

Method	**Outcomes**		
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Illustration II

Method	**Outcomes**		
	Skills in Native Language	*Motivation for Progress*	*Rural Industry Skills*
A. Technical Institute	2*	1	1
B. Special Educational Facilities in Rural Areas	1	1	1
C. Subsidies or Tax Credits to Industrial Firms	3	1	3